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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/003,103	12/06/2001	Takashi Fushie	000666A	5778
38834	7590	12/03/2004	EXAMINER	
WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP 1250 CONNECTICUT AVENUE, NW SUITE 700 WASHINGTON, DC 20036			CHANG, RICK KILTAE	
		ART UNIT	PAPER NUMBER	
		3729		

DATE MAILED: 12/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

CR

Office Action Summary	Application No.	Applicant(s)
	10/003,103	FUSHIE ET AL.
	Examiner	Art Unit
	Rick K. Chang	3729

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 30 September 2004.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 25-50 is/are pending in the application.
 4a) Of the above claim(s) 38-50 is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) that are not listed in 4a and 7 below is/are rejected.
 7) Claim(s) 27,31,32 and 35 is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date 12/6/01.

4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date _____.
 5) Notice of Informal Patent Application (PTO-152)
 6) Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Species III in the reply filed on 9/30/04 is acknowledged.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
3. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

4. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the

printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 25-26, 28-29, 33-34 and 36-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olsen et al (US 4,096,626) in view of Elledge (US 5,840,201).

Olsen discloses 30 are photosensitive; forming holes, crystallizing, forming layers and coating steps are disclosed in col. 4, lines 7-11 and 22-29; claim 28 steps of forming a wiring layer and forming an insulating layer (Figs. 3-8 show stacking multiple layers); claim 33 step is disclosed in col. 4, lines 24-41; claims 36-37 subsequent layers form the barrier layers and insulating layers.

Olsen fails to disclose crystallizing the substrate results in tailoring the substrate's CTE to the wiring layers.

Elledge discloses crystallizing the substrate results in tailoring the substrate's CTE to the wiring layers (Abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Olsen by crystallizing the substrate results in tailoring the substrate's CTE

to the wiring layers, as taught by Elledge, for the purpose of increasing etching rate to form the holes and minimizing thermal expansion between two different materials.

Re claim 29: Olsen fails to disclose the line width. It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the line width of 3 to 50 μm , since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

7. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Olsen et al (US 4,096,626)/Elledge (US 5,840,201) as applied to claim 25 above, and further in view of Clark et al (US 4,435,718).

Olsen/Elledge fail to disclose covering the through holes.

Clark discloses covering the through holes (Fig. 4 shows a case covering the all the components inside the printer).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Olsen/Elledge by covering the through holes, as taught by Clark, for the purpose of protecting the components of the printer from the environment.

8. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Olsen et al (US 4,096,626)/Elledge (US 5,840,201) as applied to claim 25 above, and further in view of Chang et al (US 5,266,446).

Olsen/Elledge fail to disclose forming at least one adhesion-reinforcing layer.

Chang discloses forming at least one adhesion-reinforcing layer (116).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Olsen/Elledge by forming at least one adhesion-reinforcing layer, as taught by Chang, for the purpose of enhancing adhesion between two dissimilar

Allowable Subject Matter

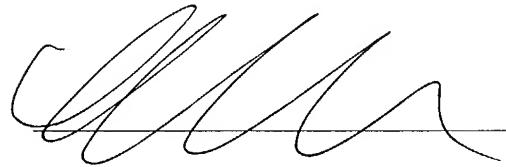
9. Claims 27, 31-32, and 35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

10. **Please provide reference numerals (either in parentheses next to the claimed limitation or in a table format with one column listing the claimed limitation and another column listing corresponding reference numerals in the remark section of the response to the Office Action) to all the claimed limitations as well as support in the disclosure for better clarity (optional).** Applicants are duly reminded that a full and proper response to this Office Action that includes any amendment to the claims and specification of the application as originally filed requires that the applicant point out the support for any amendment made to the disclosure, including the claims. See 37 CFR 1.111 and MPEP 2163.06.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick K. Chang whose telephone number is (571) 272-4564. The examiner can normally be reached on 5:30 AM to 1:30 PM, Monday through Thursday.

The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9302 for regular communications and (703) 872-9303 for After Final communications.



**RICHARD CHANG
PRIMARY EXAMINER**

RC
December 1, 2004